UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB1998-0917

June 26, 1998

W.B. Paynter
U.S. Army Corps of Engineers
Portland District, CENWP-CO-GP
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Consultation on Lower Umpqua River Aggregate Excavation (COE 96-128), Douglas County, Oregon

Dear Mr. Paynter:

This concludes our correspondence regarding the effects on Umpqua River cutthroat trout (UR cutthroat) of issuance of a Section 404(b)(1) permit (COE 96-128) to excavate aggregate from the lower Umpqua River. The permit applicant is the Umpqua River Navigation Company (Umpqua Navigation), which proposes to excavate up to 200,000 cubic yards of aggregate annually for a three year period. In the Umpqua River basin, NMFS has listed UR cutthroat under the Endangered Species Act (ESA) as threatened on August 9, 1996 (61 FR 41514). Critical habitat for UR cutthroat was designated by the NMFS on January 9, 1998 (63 FR 1338). This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

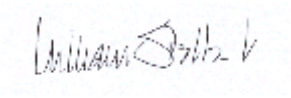
In a letter dated July 18, 1997, you requested informal consultation on Umpqua Navigation's application. Attached to this letter were copies of the Public Notice for Permit Application (dated March 13, 1996) which described the proposed action, and a Memorandum for the File (dated July 17, 1997) which included a revised project description and proposed special conditions for the permit. In a letter dated December 4, 1997, we replied that we did not concur with your "not likely to adversely affect" determination, and informed you that formal consultation on the application would be required. We also stated that a Biological Assessment was not required, as substantial information had already been

provided to the NMFS, but that a monitoring plan for the project would be necessary for the NMFS to complete consultation.

Enclosed is the Biological Opinion on your issuance of 404(b)(1) permit to Umpqua Navigation, authorizing the incidental take of UR cutthroat trout that may be caused by this action, provided that the terms and conditions of the incidental take statement are met.

If you have any questions regarding this opinion, please contact Dan Kenney, Fishery Biologist at (541) 957-3385.

Sincerely,



William Stelle, Jr.
Regional Administrator

cc: Mike McCabe, Oregon Division of State Lands
Dave Loomis, Oregon Department of Fish and Wildlife
Steve Wille, U.S. Fish and Wildlife Service

Endangered Species Act - Section 7
Consultation

BIOLOGICAL OPINION

Effects of Barge-Based Aggregate Excavation (COE ID #96-128) in the Lower Umpqua River on Umpqua River Cutthroat Trout

Agency: Portland District, U.S. Army Corps of Engineers

Consultation Conducted By: National Marine Fisheries Service, Northwest Region

Date Issued: June 26, 1998

Refer to: OSB199-0917

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ATTACHMENT 1 BIOLOGICAL REQUIREMENTS AND STATUS UNDER 1996 ENVIRONMENTAL BASELINE: UMPQUA RIVER CUTTHROAT TROUT, OREGON COAST COHO SALMON, OREGON COAST STEELHEAD, SOUTHERN OREGON/NORTHERN CALIFORNIA COHO SALMON, KLAMATH MOUNTAIN PROVINCE STEELHEAD, LOWER COLUMBIA STEELHEAD, AND CHUM SALMON

ATTACHMENT 2 APPLICATION OF ENDANGERED SPECIES ACT STANDARDS TO: UMPQUA RIVER CUTTHROAT TROUT, OREGON COAST COHO SALMON, SOUTHERN OREGON/NORTHERN CALIFORNIA COHO SALMON, OREGON COAST STEELHEAD, KLAMATH MOUNTAIN PROVINCE STEELHEAD, LOWER COLUMBIA STEELHEAD, CHUM SALMON, CHINOOK SALMON, AND SEA-RUN CUTTHROAT TROUT

ATTACHMENT 3 NMFS' Juvenile Fish Screen Criteria

I. Background

The Umpqua River cutthroat trout (UR cutthroat), (*Oncorhynchus clarki clarki*) was listed by the National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA) as endangered on August 9, 1996 (61 FR 41514). Critical habitat for UR cutthroat was designated by the NMFS on January 9, 1998 (63 FR 1338). UR cutthroat occur in the Umpqua River Basin in southwest Oregon.

In a letter dated July 18, 1997, the Portland District of the U.S. Army Corps of Engineers (COE) requested informal consultation on the application (COE ID #96-128) of the Umpqua River Navigation Company (Umpqua Navigation) to excavate aggregate material from the lower Umpqua River, near Scottsburg, Oregon. Umpqua Navigation submitted the application under Section 404(b)(1) of the Clean Water Act, which the COE administers. Umpqua Navigation proposes to annually remove, by barge-mounted clamshell dredge, up to 200,000 cubic yards (cy) of sand and gravel between river miles 20 and 24. The proposed duration of the 404(b)(1) permit is three years. Attached to the COE's July 18, 1997 letter were copies of the Public Notice for Permit Application (dated March 13, 1996) which described the proposed action, and a Memorandum for the File (dated July 17, 1997) which included a revised project description and proposed special conditions for the permit.

In a letter dated December 4, 1997, the NMFS stated that it did not concur with the "not likely to adversely affect" determination made by the COE in its July 18, 1997 letter, and informed the COE that formal consultation on the application would be required. In the December 4, 1997 letter, the NMFS also informed the COE that a Biological Assessment was not required, as substantial information had already been provided to the NMFS, but that a monitoring plan for the project would be necessary for the NMFS to complete consultation. NMFS staff participated in meetings with Umpqua Navigation and the Oregon Department of Fish and Wildlife (ODFW) to develop the monitoring plan on December 9, 1997 and January 16, 1998. The COE submitted the monitoring plan to the NMFS in correspondence dated February 27, 1998.

The objective of this biological opinion is to determine whether the aggregate excavation proposed by Umpqua Navigation is likely to jeopardize UR cutthroat, listed as endangered under the ESA, or result in destruction or adverse modification of designated critical habitat for UR cutthroat. Although NMFS expects some effects to individual fish and their habitat from these actions, the effects to UR cutthroat essential habitat are expected to be insignificant because of project design, and adverse effects to individual UR cutthroat are expected to be rare. As part of the action, riverbed contours, benthic invertebrates, and water quality will be monitored, which will provide a more complete assessment of baseline conditions and project effects for future permitting decisions.

II. Proposed Action

The "proposed action" is issuance of an individual permit under Section 404(b)(1) of the Clean Water Act. The permit would allow Umpqua Navigation to annually excavate up to 200,000 cy of sand and gravel from the Umpqua River at up to six specific sites between river miles 20 and 24. The sites are within the tidal influence zone, and, based on Umpqua Navigation maps, make up about 5% of the river area in that 4-mile reach. The permit is proposed for a three year period. Umpqua Navigation would use a barge-mounted clamshell dredge for the excavation, which is proposed to occur year-around. The dredge barge, which also includes screening and crushing equipment, uses four anchors to maintain position, and can generally operate without pulling all four anchors for several days to several weeks. Aggregate is conveyed to a transport barge, which is tied to the dredge barge until fully loaded, when the transport barge is towed to Umpqua Navigation's storage yard and another transport barge is tied to the dredge barge. No more than 25,000 cy would be excavated from any of the six sites in any one calendar year. The COE has imposed several conditions on the proposed permit, including those intended to prevent excess turbidity, to protect shorelines and streambed slope, and to provide information on which to establish baseline conditions and determine the potential impacts of the dredging.

III. Biological Information and Critical Habitat

The listing status, biological information, and critical habitat elements for UR cutthroat are described in Attachment 1. Some site-specific information is provided below.

UR cutthroat inhabit the Umpqua River Basin of southwest Oregon, and the Evolutionarily Significant Unit (ESU) consists of resident, potamodromous, and anadromous life histories. Individuals of the potamodromous and anadromous forms have the potential to inhabit the lower Umpqua River in the vicinity of the proposed aggregate excavation sites. Spawning by UR cutthroat is not known to occur in the mainstem of the lower Umpqua River, but the area is used as a migration corridor by both adults and juveniles of the ESU. Historically, adult anadromous cutthroat trout passed Winchester Dam (on the North Umpqua River) predominantly from late June through November, with peaks in mid-July and mid-October, while juvenile outmigration is thought to occur chiefly from March through October (Johnson et al. 1994). When suitable habitat is available, anadromous cutthroat trout parr utilize large streams and rivers before smolting (Lowry 1965, Giger 1972, Sumner 1972), so the lower Umpqua River is likely used as a rearing area by juvenile cutthroat trout. Additionally, adult anadromous cutthroat trout are known to feed in the estuaries and tidal areas of some streams, both before and during spawning migrations (Trotter 1987).

IV. Evaluating Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by the consultation regulations (50 C.F.R. Part 402). Attachment 2 describes how NMFS applies the ESA jeopardy and destruction/adverse modification of critical habitat standards to consultations for Federal land management actions in the Umpqua River basin.

As described in Attachment 2, the first steps in applying the ESA jeopardy standards are to define the biological requirements of UR cutthroat and to describe the species' current status as reflected by the environmental baseline. In the next steps, NMFS' jeopardy analysis often considers how proposed actions are expected to directly and indirectly affect specific environmental factors that define properly functioning aquatic habitat essential for the survival and recovery of the species. This type of analysis is set within the dual context of the species' biological requirements and the existing conditions under the environmental baseline (defined in Attachment 1). Such an analysis takes into consideration an overall picture of the beneficial and detrimental activities taking place within the action area. In this proposed action, however, NMFS has determined that potential effects of the action on environmental factors are a less likely cause of harm to UR cutthroat than direct physical injury. If direct physical injury or mortality to UR cutthroat or the net effect on the environmental baseline of the proposed activities is found to jeopardize the listed species, then NMFS must identify any reasonable and prudent alternatives to the proposed action.

A. Biological Requirements

For this consultation, NMFS finds that the biological requirements of UR cutthroat are best expressed in terms of current population status. This information is summarized in Attachment 1. As discussed in III., above, UR cutthroat use the tidal portion of the Umpqua River as a migration corridor, and, likely, as juvenile rearing and adult feeding habitat. Therefore, the environmental factors that define properly functioning migration, rearing, and feeding habitat are necessary for survival and recovery of the species. Individual environmental factors include water quality, habitat access, physical habitat elements, channel condition, and hydrology. Although it is not relevant to this action, properly functioning watersheds, where all of the individual factors operate together to provide healthy aquatic ecosystems, are also necessary for the survival and recovery of the listed species. This information is also summarized in Attachment 1. As discussed in "V. Analysis of Effects", below, the NMFS does not expect that the aggregate excavation will adversely affect any of the environmental factors or essential features of UR cutthroat habitat to a significant extent.

B. Environmental Baseline

Current range-wide status of UR cutthroat under environmental baseline. NMFS described the current population status of the UR cutthroat in its status review (Johnson et al. 1994) and in the final rule

(August 9, 1996, 61 FR 41514). Critical habitat for UR cutthroat was designated by the NMFS on January 9, 1998 (63 FR 1338). The recent range-wide status of this species is summarized in Attachment 1.

Current status of UR cutthroat under environmental baseline within the action area. The "action area" is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The general action area can be defined as the mainstem Umpqua River downstream from the uppermost excavation site at river mile 24. No effects of the action are expected either upstream of the excavation, or in the Pacific Ocean.

As noted above, UR cutthroat use the action area primarily as a migration corridor, and likely as a rearing and feeding area during parts of the year, but no spawning is known to occur there. High water temperatures likely make portions of the action area unsuitable during the mid- to late summer, but the proposed action would not affect water temperature. While water temperatures in the action area are unsuitable during the mid- to late summer and thus "not properly functioning" for Umpqua cutthroat, this has probably always been the case in the lower mainstem Umpqua River during part of the year. These elevated water temperatures have probably been exacerbated by urban and agricultural development, as well as upstream forest management practices.

Based on the best information available on the current status of UR cutthroat (Attachment 1), NMFS assumptions given the information available regarding population status, population trends, and genetics (see Attachment 2), and the relatively poor environmental baseline conditions within the action area (see UR cutthroat final listing rule), NMFS concludes that not all of the biological requirements of the species within the action area are currently being met under the environmental baseline. Actions that do not retard attainment of properly functioning aquatic conditions, when added to the environmental baseline, are necessary to meet the needs of the species for survival and recovery.

V. Analysis of Effects

A. Effects of Proposed Action

The effects determination in many Opinions is made using a method for evaluating current aquatic conditions (the environmental baseline) and predicting effects of actions on them. While the full process is not appropriate in the current Opinion, because the subject action is unlikely to adversely affect the environmental baseline, this process is described in the document "Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996). This assessment method was designed for the purpose of providing adequate information in a tabular form for NMFS to determine the effects of actions subject to consultation. The effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the project area.

The results of a completed checklist for a proposed action provides a basis for determining the overall effects on the environmental baseline in the action area. Effects to the environmental baseline from this action are expected to be insignificant (all aquatic habitat factors will be maintained) because of project design.

The principal potential effects of the proposed aggregate excavation to UR cutthroat and its critical habitat are related to the use of the barge-mounted clamshell dredge, which may disturb UR cutthroat and their habitat principally through anchoring, dredging, and processing. In addition, the loss of stream substrate and the possible introduction of toxic substances into the river also have the potential to adversely affect UR cutthroat and its critical habitat.

I. Anchoring, excavation, and processing. All of these activities have the potential to indirectly affect UR cutthroat through impacts to habitat or other aquatic organisms. Some direct effects of these activities to individual UR cutthroat are also possible. Principally, these activities would create turbidity (suspended sediments) in the Umpqua River from fine sediments already incorporated into the river bottom; no additional input of sediment to the river is likely to occur because of the proposed action. Much of the suspended sediment would redeposit in the Umpqua River a short distance downstream of the excavation site. In addition, the equipment used for these activities may come into direct contact with individual UR cutthroat and other lower Umpqua River organisms.

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence et al. 1996). Fine redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence et al. 1996), and to reduce cover for juvenile salmonids (Bjornn and Reiser 1991).

Primary production would not likely be affected by the proposed action because phytoplankton would quickly be carried out of the turbidity zone by the river current and/or tides; attached algae is unlikely to be greatly affected by localized turbidity, because water depth in the lower Umpqua River is typically greater than 20 feet, where light penetration is already likely to be low. Some adverse effects to benthic invertebrates, up to and including mortality, are likely to occur for a short distance (perhaps several dozen to several hundred feet, depending on ambient turbidity) below each of the dredging sites, but these sites should quickly recover/recolonize after cessation of excavation at each site (Bennett and Shrier 1986). As the turbidity plume from the proposed action is likely to be only a few dozen feet in width, compared to the lower Umpqua's minimum width of about 500 feet, the total effect on benthic productivity is likely to be low.

Although turbidity has some potential to directly adversely affect fish, this usually occurs in situations where no relief from the turbidity is possible. In the lower Umpqua River, adult and juvenile UR cutthroat would have the opportunity to move out of the turbidity plume created by the proposed action, so no direct adverse effect is likely. Also, indirect effects of turbidity on UR cutthroat, such as a

reduction in prey availability, seem unlikely due to the small scale of the action's effect on benthic invertebrates compared to the effects of other human-caused and natural processes in the lower Umpqua River. In addition, the COE is requiring, as a special condition of the 404(b)(1) permit, that in-water work performed by Umpqua Navigation shall minimize turbidity. Redeposited sediments should have a similar negligible effect on UR cutthroat, because no spawning would occur in the lower Umpqua River, and because of the small scale of potential indirect effects.

It is also possible that UR cutthroat could be directly affected by Umpqua Navigation's equipment through capture, entrainment, strike, crushing or disturbance, or indirectly affected through similar equipment effects on prey species. Because UR cutthroat will often be present in the lower Umpqua River in the vicinity of the proposed action, it is possible that individual UR cutthroat in close proximity to the barge might, in the process of aggregate excavation, come in contact with the clamshell dredge when the bucket is dropped to the river bottom or when it is closed and retrieved. Fish in the path of the bucket could be struck during its deployment or retrieval, or crushed by the weight of the bucket on the river bottom, or captured within the bucket and dumped on the barge with the aggregate. Any of these scenarios would likely cause injury or death to the affected fish. Similar strike and crushing is possible in deployment and retrieval of anchors, and propeller strike is possible from the towboats that move the dredge and/or transport barge. Water pumps used for the screen/crushing operation and towboats may entrain UR cutthroat if not properly screened. Noise, light, vibration, etc. from Umpqua Navigation's operation may also disturb migrating or rearing UR cutthroat, causing them to avoid the immediate dredging area. Finally, similar direct effects to other lower Umpqua River organisms, such as benthic and planktonic invertebrates and several species of fish, may occur due to contact with clamshell dredge buckets, anchors, etc.

While the possibility exists that direct physical harm could occur to UR cutthroat due to the use of Umpqua Navigation's equipment, such injuries would probably be rare. This is because only adult or relatively large juvenile UR cutthroat are likely to occur in the lower Umpqua River, and these fish are both wary of potential danger and have substantial swimming ability. That is, the noise, movement, turbidity, light, etc. from Umpqua Navigation's barges, dredge, anchors, etc. are likely to be easily detectable by UR cutthroat from a sufficient distance to allow the fish to avoid the area of danger. Awareness by UR cutthroat of Umpqua Navigation's activities may be impaired under conditions of high ambient turbidity, noise, or darkness, but the agility of these fish is still likely to prevent injury. Additionally, the COE has included a special condition for the proposed 404(b)(1) permit that prohibits aggregate excavation and rock crushing between 10 p.m. and 7 a.m., so most of these actions will occur during daylight hours, when the excavation operations may be most detectable.

While the noise, etc. generated by Umpqua Navigation's operation has the potential to disturb UR cutthroat, the zone of significant disturbance is would be small compared to the remainder of the lower Umpqua River, and so should not adversely affect individuals of the species. Less mobile forms of UR cutthroat, such as eggs and fry, should not occur in the lower Umpqua River, and would not be affected

by the proposed action. Injury and mortality to benthic invertebrates, as well as eggs and larvae of other fish species, is likely to occur because of the proposed activities, but based on reasoning similar to that advanced above for the indirect effects of turbidity and sedimentation, it is likely that the indirect effects on UR cutthroat would be minimal.

ii. Loss of substrate. Extraction of aggregate from the lower Umpqua River has the potential to change the attributes of riverbed and estuarine substrate, and to affect river bottom contours. Because substrate type and water depth are components of the physical environment in which UR cutthroat exist, it is possible that the loss of aggregate in the lower Umpqua River may affect UR cutthroat.

The most common fisheries concern related to aggregate mining from stream channels is loss of spawning habitat. In addition, as noted above, interstices between large substrate particles can provide cover for juvenile salmonids. In many streams, large substrate (chiefly boulders and cobble) provides stream bottom roughness, forming areas of hydraulic shelter for adult and juvenile salmonids. Substrate of all sizes provides habitat for benthic organisms, which are a major part of the lower Umpqua River food web. Regarding changes in stream bottom depth caused by aggregate excavation, individual salmonids may prefer to be in water of particular depths, depending on such factors as life stage, diel patterns, turbidity, predation, etc. For example, juvenile fall chinook salmon in the lower Snake River initially prefer shallow (<20 feet in depth) areas near shore during rearing, but usually eventually move offshore into deeper water, possibly in conjunction with smolting (Bennett et al. 1993).

Spawning habitat loss is not a concern for UR cutthroat in this case, because the lower Umpqua River, especially the tidewater area, is not spawning habit for UR cutthroat. It also seems unlikely that UR cutthroat fry or small parr would use the action area to any significant extent, as UR cutthroat are thought to generally remain in upper tributary streams until at least 1 year of age (Johnson et al. 1994). While it is possible that aggregate excavation may remove substrate used as cover by larger UR cutthroat parr or smolts, there is no research available to confirm this idea. Additionally, the composition of the substrate in the action area should not change substantially, as a large majority of the action area will not be excavated, and, even in the six excavation sites, substrate similar to that removed will still occur on the river bottom after the excavation.

Regarding changes in river and estuarine depth due to aggregate excavation, it is not clear that substantial long-term effects are inevitable in the lower Umpqua River as a result of this action. Certainly, the aggregate removed by Umpqua Navigation may cause the average depth of the action area to be greater by a slight amount over the 3-year term of the proposed permit. It is not certain that an increase in average depth will occur, however, because the speed of recruitment of new gravel to the Umpqua intertidal zone from upstream, as well as the relative importance of the pertinent mechanisms, is unknown. Cross-sectional surveys of several sites in the lower Umpqua show that river bottom contours vary from year-to-year in both excavated and non-excavated sites. The additional cross-sectional monitoring proposed by Umpqua Navigation may provide a better understanding of the long-term consequences of the proposed action on river morphology. Specific to effects on UR cutthroat,

the COE has proposed conditions to that would prevent excavation within 50 feet of the shoreline and to control sloughing of excavated slopes, so it appears that both deep and shallow water habitat for UR cutthroat will be preserved in the
lower Umpqua River; individuals of the stock should be able to find sufficient suitable areas for migration, rearing, etc. It is possible that changes in river depth could alter conditions for both predators and prey of UR cutthroat, but the ultimate effects on the listed stock are speculative, but likely to be minor over the short-term.

iii. Toxic contamination. Operation of the towboats, clamshell dredge, screening plant, etc., requires the use of fuel, lubricants, etc., which, if spilled into the lower Umpqua River, could injure or kill aquatic organisms. The COE requires, as a condition of the proposed permit, that Umpqua Navigation take care to prevent any petroleum products, chemicals, or other deleterious materials from entering the water. Assuming that Umpqua Navigation meets this condition, it is unlikely that a substantial spill will occur. Even if a spill of a toxic material were to occur, it is likely that the large volume of flow in the lower Umpqua River (minimum flow ever recorded was in excess of 650 cubic feet per second) would dilute the substance to a non-lethal level for any UR cutthroat that might be in the vicinity.

B. Effects of Interrelated and Interdependent Actions. Interrelated and interdependent actions are those that would not occur but for the proposed action. Umpqua Navigation sells the aggregate it excavates chiefly for use in construction of buildings, roads, etc. There are many companies in southwest Oregon that sell rock for construction purposes; the aggregate is mined from streams or upland deposits, or is blasted from quarries and crushed. Therefore, although it is possible that some of the aggregate excavated by Umpqua Navigation from the lower Umpqua River would be used in construction projects that might adversely affect UR cutthroat, aggregate from other sources would be available whether the 404(b)(1) permit is issued or not. Thus, the proposed action will not result in actions that would not otherwise occur.

C. Cumulative Effects. Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The “action area” for this consultation is the lower Umpqua River downstream from river mile 20. Future Federal actions, including land management activities, are being (or have been) reviewed through separate section 7 consultation processes. In addition, non-Federal actions that require authorization under section 10 of the ESA will be evaluated in section 7 consultations. Therefore, these actions are not considered cumulative to the proposed action. NMFS is not aware of any future new (or changes to existing) State and private activities within the action area that would cause greater impacts to listed species than presently occurs. NMFS assumes that future private and State actions will continue at similar intensities as in recent years.

VI. Conclusion

NMFS has determined that, based on the available information, permitting of Umpqua Navigation's proposed aggregate excavation from the lower Umpqua River under Section 404(b)(1) of the Clean Water Act, is not likely to jeopardize the continued existence of UR cutthroat, or result in the destruction or adverse modification of proposed critical habitat for UR cutthroat. NMFS used the best available scientific and commercial data to apply its jeopardy analysis (described in Attachment 2), when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline (described in Attachment 1), together with cumulative effects.

In reaching this conclusion, NMFS determined that the survival and recovery of UR cutthroat would not be appreciably diminished by the proposed action. This conclusion was reached primarily because: 1) the proposed action would likely cause minor, short-term decreases in water quality and benthic invertebrate populations, but the effects on the essential features of UR cutthroat habitat are expected to be negligible; 2) direct disturbance of UR cutthroat due to noise, etc. would be minimal, due to the small area of the aggregate excavation operation compared to the remainder of the lower Umpqua River; and 3) direct mortality from entrainment in the clamshell dredge, etc. should be rare because most individual UR cutthroat coming into proximity of the dredge should be aware and agile enough to avoid injury.

In the long-term, the information on river bottom morphology, benthic invertebrates, and water quality developed through Umpqua Navigation's monitoring plan will allow a better assessment of the effects of the aggregate excavation on UR cutthroat and other aquatic organisms.

VII. Reinitiation of Consultation

Based on the information provided, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Biological Opinion. To ensure protection for a species assigned an unquantifiable level of take, reinitiation of consultation is required: (1) if any action is modified in a way that causes an effect on the listed species that was not previously considered in the information provided and this Biological Opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

VIII. References

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this opinion, in addition to the BA.

Bennett, D.H., T.H. Dresser Jr., T.S. Curet, K.B. Lepla, and M.A. Madsen. 1993. Monitoring fish community activity at disposal and reference sites in Lower Granite reservoir, Idaho-Washington, Year 4. Department of Fish and Wildlife Resources, University of Idaho, Moscow, Idaho.

Bennett, D.H. and F.C. Shrier. 1986. Effects of sediment dredging and in-water disposal on fishes in Lower Granite Reservoir, Idaho-Washington. U.S. Army Corps of Engineers, Walla Walla, Washington.

Bjornn, T.C. and D.W. Reiser. 1991. Habitat requirements of salmonids in streams. American Fisheries Society Special Publication 19:83-138.

Johnson, O.W., R.S. Waples, T.C. Wainwright, K.G. Neely, F. W. Waknitz, and L. T. Parker. 1994. Status review of Oregon's Umpqua River sea-run cutthroat trout. National Marine Fisheries Service, Coastal Zone and Estuarine Studies Division, Seattle, Washington.

NMFS (National Marine Fisheries Service). 1996. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon.

Spencer, B.C., G.A. Lomnicky, R.M. Hughes, and R.P. Novitzki. 1996. An ecosystem approach to salmonid conservation. TR-4501-96-6057. ManTech Environmental Research Services Corp., Corvallis, Oregon.

IX. Incidental Take Statement

Sections 4(d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is

not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

A. Amount or Extent of the Take

The NMFS anticipates that the action covered by this Biological Opinion (permitting of excavation of aggregate from the lower Umpqua River) has more than a negligible likelihood of resulting in incidental take of Umpqua River cutthroat because of the potential for direct incidental take during in-water work (especially clamshell dredging). Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on the species' habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Biological Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information provided, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Biological Opinion.

B. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the take of UR cutthroat.

1. The COE shall ensure that Umpqua Navigation shall minimize the potential for direct incidental take of UR cutthroat due to the effects of aggregate excavation.

C. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the COE ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1a. All general and specific conditions (including the monitoring program transmitted to the COE in a letter dated January 28, 1998) placed on the 404(b)(1) permit by the COE will be implemented by Umpqua Navigation.

1b. Any injury or mortality to salmonids observed by Umpqua Navigation as a result of its aggregate operation in the Umpqua River shall be reported to the NMFS' Roseburg Field Office within 7 days. In addition, Umpqua Navigation shall freeze or preserve (in 70% isopropyl alcohol) the carcasses of any salmonids discovered on the dredging or transport barges to allow species identification by the Roseburg Field Office. Close-up photos of salmonid carcasses that permit species identification may be substituted for the frozen or preserved carcasses.

1c. Any pump or water intakes used by Umpqua Navigation during aggregate excavation operations shall meet the specifications in Attachment 3.